

**WP1 STATUS REPORT (Jan 31, 1990) DRAFT**

**Systems Subcommittee  
Working Party 1**

**Chairman's Status Report  
Jan 31, 1990**

**Submitted To:  
Irwin Dorros  
Chairman, Systems Subcommittee**

**Submitted by:  
Birney Dayton, Chairman, SS/WP1  
President  
NVision, Inc.  
P.O. Box 1658  
Nevada City, CA 95959**

## **WP1 STATUS REPORT (Jan 31, 1990) DRAFT**

### **1. Introduction**

Since the last WP1 interim report, a number of changes in proponent status have occurred. As of the last meeting of the working party on January 24, the proponent systems with slots in the ATTC schedule were Faroudja SuperNTSC, MIT, NAP HDS-NA (Augmentation), NAP HDS NA-6 (Simulcast), NHK Compatible MUSE-6, NHK Narrow MUSE, PSI Genesys, DSRC ACTV-I, DSRC ACTV-II, and Zenith SC-HDTV. At the request of the advisory committee, WP-1 reviewed the proponents for preliminary certification. Preliminary certification was defined as: "We understand how this system is proposed to work, and the proponent has been in regular attendance and will likely have a system for test". No attempt has been made to judge the relative quality of the systems in the field as a condition for preliminary certification. Of the systems that did not receive preliminary certification, most were incompletely documented.

Six systems received preliminary certification at the January 24 meeting. Those were DSRC ACTV-I, DSRC ACTV-II, NAP HDS NA-6 Simulcast, NHK Compatible MUSE-6, NHK Narrow MUSE, and Zenith SC-HDTV. Since that meeting, NBC announced the formation of the Advanced Television Research Consortium (ATRC) to include NBC, DSRC, Philips Consumer Electronics Company, and Thomson Consumer Electronics, Inc. The press release appears to change ACTV-I to simply ACTV, and proposes it as a first generation system with a simulcast approach for a second generation full HDTV system developed jointly by NAB and DSRC. Presumably, the NAP HDS NA-6 Simulcast system will be the starting point for such a system. It is not clear from the news release whether or how ACTV-II fits into the new consortium's plans. This kind of dynamics suggests that WP1 will need to continually review preliminary certifications right up to the 90 day final certification window before test.

### **2. Proponent Status**

#### **2.1 David Sarnoff Research Center**

The ACTV-I description has been updated considerably. The key changes are elimination of the VT helper signal (the system now uses unassisted motion-adaptive deinterlacing in the receiver), relocation of the Fukinuki carrier to 3.579545 MHz (vestigial sideband), and movement of the horizontal detail signal to the carrier quadrature channel. The previously mentioned digital sound carrier was not mentioned in the latest documentation. When questioned, the DSRC representative said the location of the carrier had not yet been chosen. The carriers present in the current version of ACTV-I are the visual carrier (normal and quadrature), the color subcarrier (normal and quadrature), the Fukinuki carrier (normal and quadrature), the NTSC sound carrier, and presumably a digital sound carrier. Since the Fuki carrier is at the same frequency as the color subcarrier, but vestigial sideband and Phase Alternate Field, it appears as a 30 Hz square

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wave modulation of the color subcarrier. From a spectrum analyzer perspective, the system has four carriers. ACTV-I received preliminary certification Jan 24.

ACTV-II was described in detail as a pure digital augmentation of ACTV-I on a single 16 QAM carrier. The system uses subband coding (four channels), non-linear quantization, and entropy coding to compress the augmentation signal into the available data space. Data space is also provided for digital audio. ACTV II received preliminary certification Jan 24.

### **2.2 North American Philips**

NAP submitted a description of their simulcast system, HDS NA-6. It is an extension of their HDMAC-60 satellite system to the terrestrial environment using one 6MHz channel. The system uses two quadrature-modulated visual carriers, a quadrature-modulated, spectrally-interleaved subcarrier, and a QPSK digital sound carrier to carry the six video components of the system and digital sound. The subcarrier is modulated onto both visual carriers and therefor appears in two places in the transmitted spectrum. HDS NA-6 received preliminary certification Jan 24.

### **2.3 Nippon Hoso Kyokai**

NHK submitted updated information on both Compatible MUSE-6 and Narrow MUSE. Compatible MUSE-6 is largely unchanged from the last report, but more information on 1125 to 750 line conversion was provided. This system uses the sidebands of two out of band subcarriers to fold horizontal detail information into the band. Vertical detail information is transmitted along with spectrally interleaved chrominance detail information in the masked portion of the picture above and below the letterbox. Compatible MUSE-6 received preliminary certification Jan 24.

Narrow MUSE remains largely unchanged in the video compression processing. However, a significant change in the way the video is applied to the carrier was introduced. The video band is separated into high and low bands, and the high band is frequency shifted upward, leaving a hole in the spectrum when the high and low bands are recombined. The recombined video signal is used to amplitude modulate a visual carrier 200 KHz from the lower band edge. The burden of the resulting steep vestigial sideband filter is placed on the transmitter. The hole in the video spectrum falls at the same frequency as the NTSC visual carrier so the interfering NTSC carrier can be filtered out at the receiver. The resulting useful bandwidth is 4.69 MHz. Narrow MUSE received preliminary certification Jan 24.

### **2.4 Zenith Electronics Corporation**

The Zenith SC-HDTV system showed no change in the area of modulation techniques. When asked, a Zenith representative said the technique for compression of moving video has not been decided between digitally assisted motion compensation and

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three dimensional subband coding. Both are under investigation. This system uses quadrature modulation of a single carrier to transmit both analog video and data representing digital picture information and sound. The Zenith SC-HDTV system received preliminary certification Jan 24.

### **2.5 Faroudja Laboratories**

No update from Faroudja was available for the Jan 24 meeting. A response to the questions in the chairman's letter of Dec 18, 1989 along with some block diagrams was received on Jan 29. Faroudja Labs has been advised of the need for a detailed system description by the end of February for distribution prior to the next meeting.

### **2.6 Massachusetts Institute of Technology**

MIT has in the past provided general descriptions of two approaches to ATV. A channel compatible approach and a receiver compatible approach have been proposed. Although considerable detail has been provided on the theory of the processing for both cases, the only description of a specific system that has been provided is a two page brief with reference to a top level block diagram which was not received. MIT has been advised of the need for a detailed system description by the end of February.

### **2.7 Production Services**

PSI provided updated information for their Genesys system which was received Dec 31, 1989. In addition, a changed and expanded update was provided at the Jan 24 meeting. Since the membership had not had the opportunity to review the new information, it was decided that this system would be reviewed at the March meeting. In reviewing both documents since the meeting, a number of changes are visible from earlier submissions last year. Initially PSI proposed to apply waveform modulation directly to the visual carrier (at IF) of an NTSC transmitter. In the current proposal, an additional carrier spaced 2.049388 MHz (this calculates to 130.25H) from the visual carrier is waveform modulated and suppressed leaving sideband energy in the video band. Although the provided description of waveform modulation understandably causes no change in the peak power of a carrier, it clearly reduces the rms power of that carrier (for a given peak power). There is no explanation of the nature of the sidebands, except for the statement that they only exist in the presence of changing modulation (i.e. not present for DC modulation). This would suggest that the total sideband energy present in the proposed system would be a function of the modulation rate and may be detectable by an AM detector. The above discussion addresses only one of several significant changes in the description of the Genesys system. Another is the introduction of "analog neural network" computing in the SIX video and audio compressors.

### **Others**

New York Institute of Technology has indicated a continuing interest in being a

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proponent even though not currently on the ATTC schedule. So far NYIT's submission has not been significantly updated from last summer (a brief general description was received by fax in mid January). NYIT has been advised that a complete system description will be required.

A submission was received Jan 24 from Ear Three System Manufacturing Company proposing a 2625x4480 pixel HDTV system. This system will be evaluated.

A submission was received early in January from Carole Broadcasting (actually their patent attorney) proposing the use of horizontal and vertical cross polarization to double the available bandwidth per 6MHz channel. This system was discussed briefly. Several members had had experience with depolarization effects in terrestrial VHF and UHF transmission. Carole Broadcasting has been referred to those members for information, and has been advised that some relatively simple testing could be done to help verify whether enough polarization separation exists under typical receiving conditions to warrant pursuit of such a proposal.

### **3 Conclusions**

If nothing else is sure, the rate of change of television technology can be counted on to increase. In the last six months, several major systems have undergone radical change technically and we have seen a consolidation of several key forces. It is probable that both technical and organizational change will continue over the course of ATV implementation. However, based on demonstrations to date, some of that change will be needed if we are to have wide terrestrial coverage of HDTV in single 6MHz channels (as suggested by the fact that augmentation systems have taken a back seat to simulcast approaches in the last six months).

**FCC Advisory Committee on Advanced Television Service  
Systems Subcommittee**

**Working Party 2: ATV System Evaluation and Testing (SS WP2)**

**THIRD INTERIM REPORT**

**SSWP2-0382**

**14 Feb 90**

**1. INTRODUCTION AND SUMMARY**

Working Party 2 was established by the Systems Subcommittee to conduct tests of proposed systems and provide information to help the Advisory Committee in its recommendations to the FCC. The mission and the organization were described in the report submitted in March 1989 (SSWP2-0120, Rev 17 Mar 89) and have not changed since then.

The officers (and affiliations) of SSWP2 are: Ben Crutchfield (Advanced Television Test Center), Chairman; Walt Ciciora (American Television and Communications), Vice Chairman; Joel Engel (Ameritech), Vice Chairman; George Hanover (Electronics Industries Association), Vice Chairman. The secretary is Alan Godber (NBC). The only change since the previous report is that Mr. Hanover has replaced Mr. Eb Tingley, who retired from EIA and resigned as vice chairman. SSWP2 would like to recognize Mr. Tingley's valuable contributions and thank him for his participation in our work.

SSWP2 has held a total of 14 meetings to date, all in Washington, D.C. Average attendance has been 30 with a range of 24 to 40.

This report will review the progress to date in the work of SSWP2. Primary areas remain as described below.

- o Obtain commitments of resources: laboratory facilities, special test equipment, technical assistance.

- The Advanced Television Test Center (ATTC) advises that it has moved to its permanent location and has purchased or contracted for construction of the major equipment items needed to carry out objective tests and prepare digital tape recordings for subjective tests. Cable Television Laboratories (CableLabs) and ATTC have indicated that they have informally agreed to conduct joint tests, covering terrestrial broadcasting and coaxial and fiber

cable at ATTC's facilities. The Canadian Communications Research Centre (CRC) has offered to conduct subjective tests.

- o Develop detailed management and test procedures for implementing Planning Subcommittee test guidelines, including rules and conditions for fair and independent testing.
  - The SSWP2 Management Plan and framework outlines for test procedures have been approved by the Advisory Committee. Detailed procedures based on the approved frameworks have been developed by the testing laboratories and are included with this report.
- o Supervise tests.
  - SSWP2 will make arrangements to supervise testing to ensure compliance with its Test Procedures and to deal promptly with situations where problems or unexpected situations arise during testing.
- o Analyze data and present results to the Advisory Committee.
  - Interim reports will be made when laboratory tests are completed on systems. The final report will be made after field tests of the system or systems to be recommended.

## **2 TEST GUIDELINES AND PROCEDURES**

Procedures have been prepared by the testing laboratories for objective and subjective ATV system measurements covering terrestrial broadcast and coaxial cable transmission. Drafts were distributed by SSWP2 for review and comment in September. The procedures were then revised to reflect the comments received by SSWP2 as well as additional system information that has been received from proponents and from other working parties.

### **2.1 Test Procedure Documents**

Current test procedure documents, representing the most complete that can be developed at this time, are attached to this report

***ATV Test Procedures Manual, Objective and Transmission Tests***  
(SSWP2-0189, Rev. 9 Feb 90).

This manual was approved with certain specific exceptions noted. These exceptions include absence of audio tests and withdrawal of dynamic resolution tests. Audio tests will be added later when more is known about whether proponents will have complete audio subsystems in the laboratory phase of testing and audio interface

specifications can be established. Dynamic resolution tests continue to be studied and SS WP2 is asking the advice of IEEE in resolving technical questions.

SS WP2 is considering dropping objective measurements which are related to transmitter implementation. We have agreed that it is impractical to conduct such measurements of non-NTSC signals during the laboratory phase of our work, because nothing is known about the design of high power transmitters for such signals and, therefore we cannot determine the nature and extent of nonlinearities to apply in testing. These tests will be deferred to the field test phase. We are still considering whether it is practical to conduct such measurements on NTSC-like signals.

***ATV Test Procedures Manual, Cable Television Transmission Tests (SSWP2-0357, Rev. Dec 89).***

This procedures manual has been approved. It is noted that tests for analog fiber optic transmission are not included and will be added later.

***ATV Test Procedures Manual, Subjective Test Procedures (SSWP2-0357, Rev. Dec 89).***

SS WP2 approved the form of this document and referred it to the SS WP2 task force on Subjective Test Procedures for review and revisions necessary to ensure that it conforms with test guidelines received from the Planning Subcommittee. The Task Force is completing its work, and Chairman Bronwen Jones has said the changes needed are primarily editorial. She expects the revised version to be ready for circulation by SS WP2 by February 22, 1990.

## **2.2 Future Modifications to Procedures**

Because of a number of unknown factors, it must be recognized that the test procedures developed so far will require modifications. Some will come to light before testing begins, but others may not be determined until well into the testing schedule. We are prepared to work with testing laboratories and proponents to minimize the impact on them and the Advisory Committee's schedule.

Some of the more important factors that may affect or require changes are listed here.

New test guidelines are being prepared by the Planning Subcommittee: Several attributes have been added to the original list



and test guidelines are being developed based on them. These have not yet been received by the Systems Subcommittee.

- Disclosure of technical information about proposed ATV systems scheduled for testing is not complete and is subject to change: There may be system features not yet disclosed and possibly not yet even developed, that would render existing plans partially ineffective in evaluating these systems.
- Little or no experience is available on some equipment and procedures: Some equipment and procedures are new and have not been tried. ATTC and CableLabs will require time to prove and document both, determine exactly what results can be expected, and assess how much time each procedure will require.
- Data needs have not been defined by other groups: The specific procedures and criteria to serve as the basis for the Advisory Committee to make its recommendations to the FCC are still under study. The Advisory Committee, other subcommittees, or other working parties may request data which we do not currently plan to collect.
- Not all attributes should be tested or measured: Some attributes may relate to receiver or transmitter implementation or be suitable only for theoretical technical analyses or analyses of economic, consumer, regulatory, or other concerns.

### **2.3 Field Tests**

SS WP2 has established a new task force on Field Test Procedures, chaired by Mark Richer (PBS). This group is responsible for preparing recommendations on tests and measurements appropriate to the field testing phase. It is expected that their recommendations will depend on, among other inputs, the experience gained as laboratory testing gets underway.

The task force will also work with testing laboratories and others to develop resources necessary to conduct field tests.

## **3. TEST FACILITIES**

ATTC reports that its laboratory facilities, located in Alexandria, Virginia, have been constructed and are about to be wired for signal distribution. These facilities include rooms for CableLabs offices and test bed.

### **3.1 Broadcast**

ATTC reports that it has purchased or contracted for the construction of major equipment items needed to implement the test procedures for objective and terrestrial broadcast measurements.

Two Sony high definition digital video tape recorders (HDD-1000) and the digital still store and image processor (Pixar) have been received and are being tested. A digital format convertor, designed by ATTC to permit recording and playing certain non-1125 line video formats on the 1125 line HDD-1000 recorders, is being built by Tektronix. The first prototype is expected to be ready for acceptance testing in April, 1990.

The terrestrial broadcast RF test bed is being constructed by Harris for ATTC. The design is based on plans submitted to SSWP2 and approved.

The Electronic Industries Association will supply 25 NTSC receivers, including video cassette recorders with tuners, for NTSC-related tests. SSWP2 will ask EIA and the FCC to recommend how these receivers should be selected, by age and type, to be representative of the existing receiver population.

Laboratory space, located in Alexandria, Virginia, is under construction. Laboratory facilities are expected to be operational around the end of spring, 1990.

### **3.2 Cable Television**

CableLabs has reported that it will conduct a joint testing program with ATTC, using facilities located at ATTC. Laboratory space has been designated for coaxial and fiber transmission test beds. This arrangement will permit conducting objective, terrestrial broadcast, coaxial cable, and fiber cable tests on ATV systems at one location.

### **3.3 Satellite and Other Media**

Since the primary concern of the FCC is terrestrial broadcast of ATV and the associated capability of cable systems to carry broadcast signals, SSWP2 has focused on these media in its planning for laboratory tests. It is expected that satellite tests could be part of the field testing program being developed.

### **3.4 Subjective**

ATTC, CableLabs, and CRC are in the process of discussing how the work of conducting subjective tests will be divided. The final agreement is expected to depend on the outcome of efforts to clarify which attributes must be assessed subjectively, using groups of untrained viewers, and which may be assessed using a five-member

panel of expert viewers. Subjective assessments are expected to be done "off-line" (i.e., using digital video tape recordings of signals transmitted through ATV systems) and, therefore, may be done without proponent equipment present and primarily at another location. Quality assessments and some impairment or interference tests will be done subjectively; the remaining impairment or interference tests will only involve the establishment of thresholds by the expert panel. Tests to establish thresholds and ranges of impairments will be done "on-line" (i.e., while the proponent equipment is under test) and will utilize the expert panel.

The question to be answered concerns which of the interferences and other impairments are assessed by which group. Procedures stipulate that full ranges will be recorded for all interferences and impairments so that data will be available with which to conduct a full subjective assessment even if none was initially planned.

#### **4. ISSUES.**

The following issues have been identified as requiring further study or development.

**4.1 Audio subsystem evaluation.** SS WP2 and the testing laboratories will develop an audio subsystem interface specification, similar to the video and timing interface specifications already in place. Proponents will be asked to state conformity of their system(s) or identify where differences exist. Establishment of this specification and completion of test procedures are expected to occur by June and are not expected to impact the testing schedule.

SS WP2 has stated that it will accept for testing, ATV systems which do not include fully implemented audio subsystems. Such systems must have digital channels for audio and these channels will be fully-loaded during testing. A system will not be considered to have been fully tested until it is tested with a fully-implemented audio subsystem. It should be noted that changes to an ATV system needed to implement an audio system may affect other aspects of the system and, in that case, could make it necessary to retest the system completely rather than just testing the audio system. It should be further noted that the Advisory Committee's schedule does not currently provide for retesting.

**4.2 Field tests and measurements.** Both the nature and extent of field testing needs to be developed. Reflecting the guidance of the Planning Subcommittee, we expect that only a few systems will be field tested, and we also expect field tests will serve primarily to confirm laboratory test results as well as proving the performance of the system(s) under a variety of real terrestrial broadcast and cable transmission conditions. A task force has been formed within SS WP2 to develop field test criteria and procedures. Their charge includes identifying which attributes are to be tested, what

variables are to be involved (e.g.: different terrains, weather conditions, interference conditions, types and loading of cable systems, etc). SS WP2 is requesting the advice of SS WP4 and the FCC on the data they expect to need in , respectively, developing a recommendation for an ATV system and evaluating that recommendation.

**4.3 Dynamic temporal and spatial resolution measurements.** The methods proposed in the September 14, 1989 draft Objective and Transmission Test Procedures (SSWP2-0189) utilized a non-integrating picture source, and several proponents expressed reservations that this does not simulate live (tube-type) camera performance. A procedure is needed that both adequately tests the proposed systems and is also representative of video material the systems will be expected to handle in practice. IEEE has been asked for its advice, but it is considered unlikely that a new procedure can be developed in a time consistent with the Advisory Committee schedule. SS WP2 continues to study this matter and has asked ATTC to conduct a trial of its proposed methods to determine what results would actually be found.

**4.4 Time required to conduct laboratory tests.** The laboratories have been asked to prepare detailed estimates of the time required to conduct tests to assist in determining whether, 1) an ATV system can be completely tested in the currently-estimated 30 working days or 2) what would constitute a realistic test period.

#### **Attachments**

Membership list.

Document list.

Test Procedures (3)

Comments from Zenith, 2/12/90

**FEDERAL COMMUNICATIONS COMMISSION**  
**ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICES**

**SYSTEMS SUBCOMMITTEE**

**WORKING PARTY 3: ECONOMIC ASSESSMENT**

**SECOND REPORT**  
**JANUARY 1989**

**Laurence J. Thorpe, Chairman**  
**Vice President, Production Technology**  
**Sony Advanced Systems**

**Shellie Rosser**  
**Vice President**

**Vice Chairman**  
**Anixter Corporation**

**Bill Loveless**  
**Vice President**

**Vice Chairman**  
**Bonneville Int. Corp.**

**Richard Grefe**  
**Vice President**

**Vice Chairman**  
**National Assoc. of**  
**Public Television Stations**

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## 1.0 Executive Summary:

The work statement for System Subcommittee's Working Party 3 called for the establishment of the costs associated with the distribution of ATV of various systems and for an assessment of the technological viability and economic feasibility of each of the ATV proponent systems. The first report of WP-3 in March, 1989 described our evolution into six Specialist Groups, each tasked to examine economic models and working spreadsheets for program production facilities for each of the primary distribution media, and the ATV receiver. Details of these models and spreadsheets comprised the greater part of our first report.

In the seven meetings held by WP-3 since the issuance of the first report a significant alteration to our earlier approach has been taken. This came about because of the total lack of information from any of the ATV proponents to apply to our spreadsheets. The sober fact recognized by WP-3 in March, 1989 was that we must wait for each ATV proponent to complete their development work before we can expect the detailed hardware information we seek.

This reality had, however, some attendant benefit. WP-3 decided to take a broader view in the interim and commence a more system-oriented study of the total ATV distribution infrastructure. The Specialist Groups were refocussed to develop generic system block diagrams of a total broadcast network infrastructure, including interfaces to satellite contribution feeds to affiliate local stations, and interface to cable systems. The block diagrams will be refined to a degree that will allow complete examination of the system impact of a given ATV hardware implementation - thus facilitating a comprehensive cost assessment.

Meanwhile WP-3 has begun a collaborative work program with Planning Subcommittee, Working Party 5 (on Economic Factors and Market Penetration) to develop some ATV growth scenarios to allow equipment quantities to be factored into our economic assessments. It is also the feeling of some of our membership that the time has come to solicit the support of Implementation Subcommittee Working Party 2 - Transition Scenarios - in developing our transition models. Such liaison will be sought in early 1990.

It is expected that this phase of our work will occupy a great deal of our 1990 activities. Based on our contacts to date we do not expect detailed hardware information to be forthcoming from any of the ATV proponents before the latter end of 1990.

## 2.0 Background:

This is the second report of Working Party 3.

In 1989 Working Party 3 submitted its first report to the Systems Subcommittee. This reported on the work accomplished during the eleven meetings held by WP-3 between February 24, 1988 and February 7, 1989.

During that period we had partitioned our Working Party into six Specialist Groups - Figure 1 - each of whom developed a specific list of assumptions upon which their early analysis would be based. Economic models and working spread sheets were developed by each - details of which were included in our First Report.

The need for a macro economic view of the ATV start up scenario and the possible penetration scenarios were pointed out. At the time of the first report, we had just received from Working Party 5 (Economic Factors and Market Penetration) of the Planning Subcommittee, a first attempt at such an overview. This engendered considerable discussion within WP-3.

The general feeling within WP-3 by the time of our first report was that we had developed spreadsheets of sufficient detail and flexibility to facilitate a fair and thorough economic assessment of any ATV system - provided the requisite detail in hardware information was forthcoming from the ATV proponents. The recognition, however, that such information was virtually non-existent in March 1989 (from any proponent) dictated a new turn in the studies of WP-3 for the remainder of 1989. Our second report speaks to this new work phase of WP-3.



### 3.0 WP-3 Activities to date:

Following the generation by the Specialist Groups of their respective economic models and spread sheets in early 1989, attempts were made to structure working sessions with some of the ATV proponents. It was soon evident that none of the proponents were in a position to supply information of sufficient detail to allow any form of economic analysis of their system. All were in high activity in refining their first developmental hardware and felt the current state of this hardware would not be reflective of final implementation. Equally significant was the fact that most proponents were heavily preoccupied in trying to fulfill the requirements for technical information being requested by Working Party 1 (System analysis).

At our March 24, 1989 meeting, these dilemmas posed to WP-3 were discussed in some detail. At this same meeting there occurred also a lengthy discussion on PS WP-5's report on WP-5 Projection of ATV Receiver Penetration (specifically prepared for, and submitted to our WP-3). Some six written commentaries on this report were submitted by members of WP-3. The general feeling was that an excellent start had been made by WP-5 but considerable controversy centered about the listed assumptions underlying the report. The written comments were forwarded to WP-5 with an accompanying letter from WP-3 chairman requesting that they continue their examination, working in concert with WP-3.

It was recognized that the next months could be spent on fruitful overview studies while allowing time for the various ATV R&D efforts to progress with minimal "interference" from WP-3. Specifically, our prior work in generating economic models for the various transmission media, production, and the ATV receiver had exposed the fact that each ATV proponent system could have a different impact on the total television infrastructure - from originating studio to home receiver. This was especially visible in the case of the broadcast network infrastructure - the most complex of all.

At the March 24th meeting, it was, therefore, decided to proceed on a more general approach - with a particular emphasis, in the near term, on the terrestrial broadcast network system. Satellite and cable systems would be examined from the viewpoint of their interface with the total network system.

The approach to be taken was to develop system block diagrams of sufficient detail to clearly expose the impact of a given ATV system proposal on a total network and local station infrastructure. This block diagram would clearly delineate the specific points within the system requiring ATV Encoding, Decoding, Format Conversion (if required), etc. The inclusion of satellite transmission for network feeds to local station affiliates and the feeding of terrestrial broadcast signals to cable systems would be examined in the same light.

Four proponent systems were selected (based upon the recommendations of SS WP-1) as representing the more advanced systems, and also allowing some comparisons to be made between the NTSC compatible, augmentation, and simulcast system approaches to ATV transmission:

- o ACTV-1 (Single Channel Receiver Compatible) - from Sarnoff/NBC
- o HDS-NA (Dual Channel - Augmentation) - from NAPC ?
- o Narrow MUSE (dual channel - Simulcast) - from NHK
- 0 Dual Channel - Simulcast - Channel Compatible - from Zenith.

A hypothetical "play to air" program sequence was developed which encompassed all major elements of a Network infrastructure - including external independent production/post production houses, affiliate feeds, local insertion by an affiliate, broadcast to the home and feed to a cable system.

Following this key meeting of March 22, 1989 - five more meetings of WP-3 were held throughout the summer and fall of 1989 - the most recent (our 17th meeting) was held on December 7, 1989. While effort flagged considerably (accompanied by low attendance) throughout the summer, it picked up again at our recent meetings. initial block diagrams have now been generated and reviewed and are being refined based upon comments of the general membership of WP-3.

On October 30th, a joint meeting was held between our SS WP-3 and PS WP-5 to review the more macroeconomic aspects of the total assessment we are attempting. This was a particularly fruitful meeting with many broad issues examined. It was agreed that WP-5 would re-examine the receiver penetration scenario based upon some suggested alternative assumptions. Another joint meeting between the two working parties will be held early in 1990.

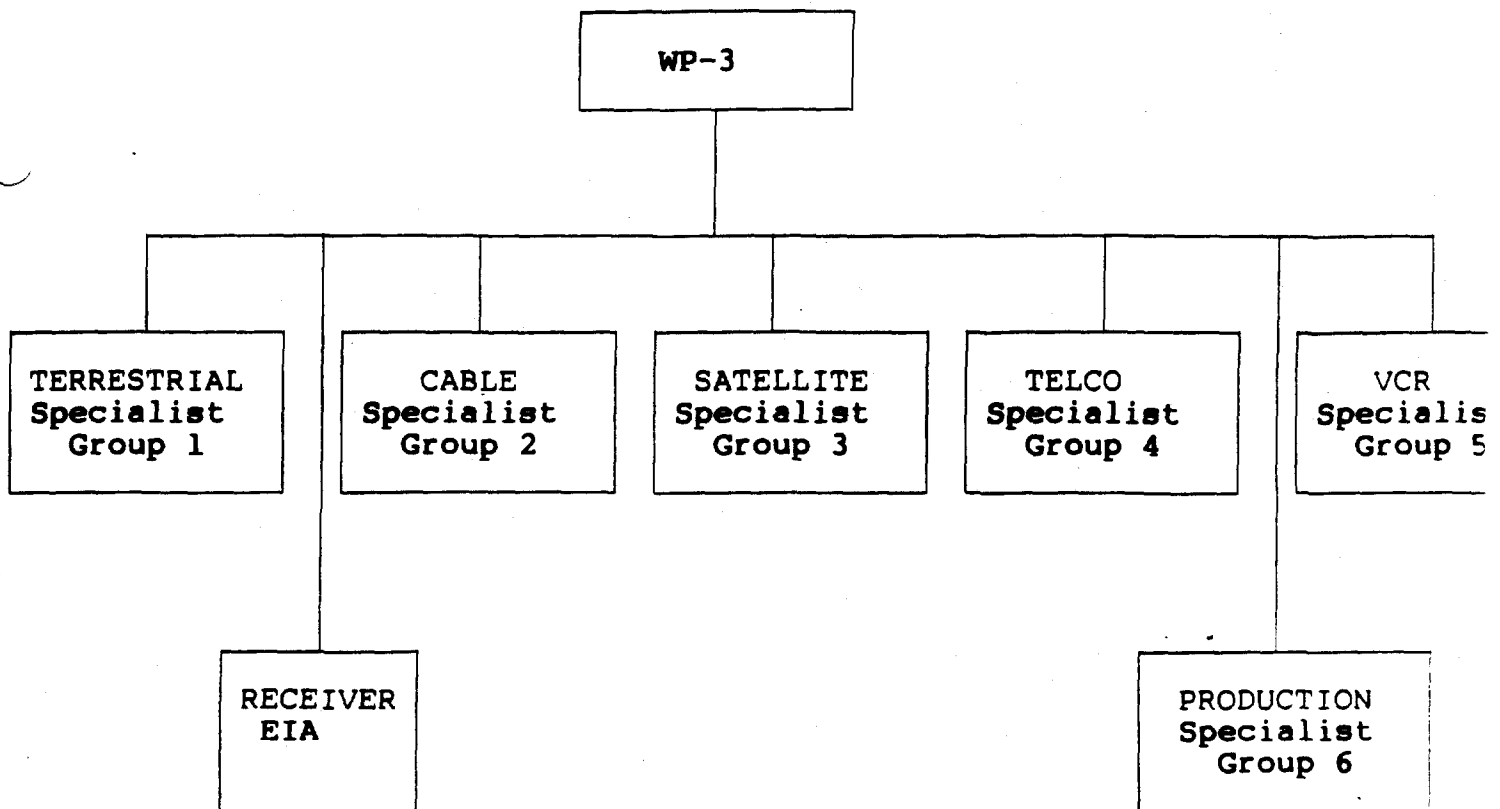


FIGURE 1 NEW STRUCTURE OF WP-3

FIGURE 2

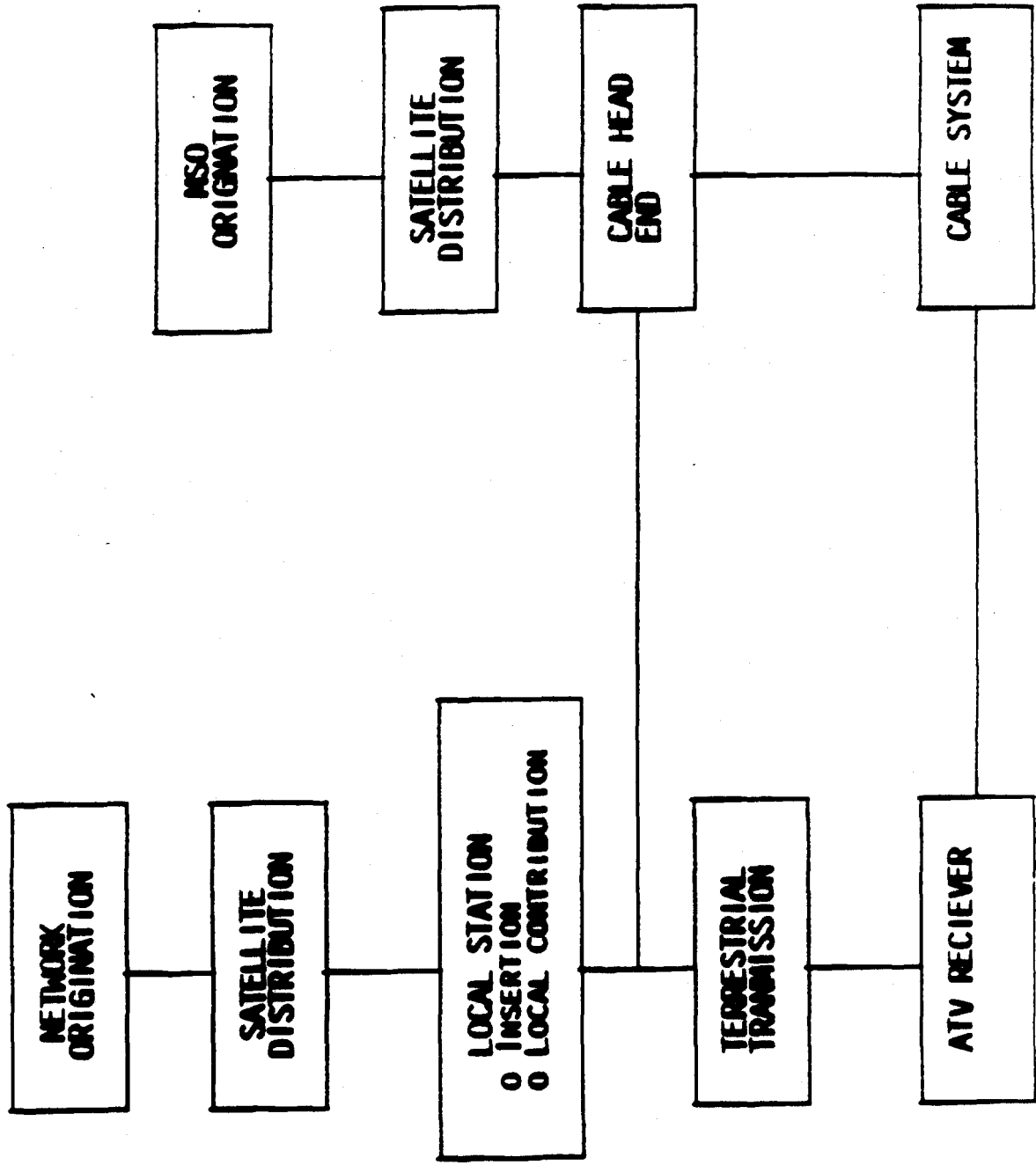
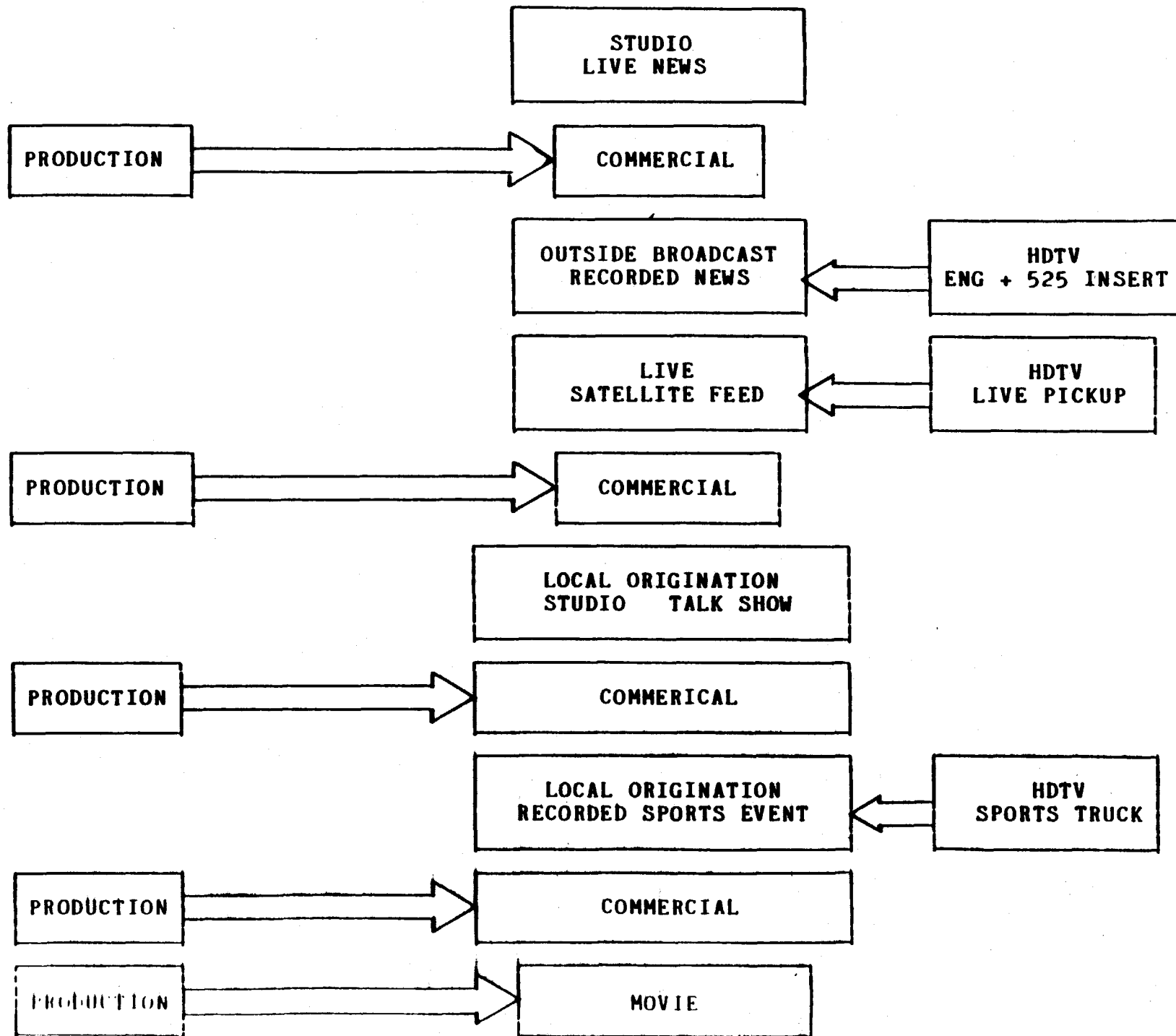


FIGURE 3



SS WP-3  
Document List

SS WP-3 0001	Agenda for first meeting, 2.24.88
SS WP-3 0002	Chairman's outline of activities
SS WP-3 0003	Minutes of first meeting and mailing list, 2.24.88
SS WP-3 0004	Charter of Advisory Committee on ATV Service
SS WP-3 0005	SS Organization, 2.24.88 PS Organization IS Organization
SS WP-3 0006	FCC Advisory Committee membership
SS WP-3 0007	SS scope and charter of working parties
SS WP-3 0008	Agenda for second meeting SS WP-3, 3.23.88
SS WP-3 0009	WP-3 Chairman's work statement, 3.12.88
SS WP-3 0010	Minutes of second meeting of SS WP-3, 3.23.88
SS WP-3 0011	Agenda for third meeting of SS WP-3, 5.4.88
SS WP-3 0012	SS WP-3 tasks and interfaces, 2.24.88
SS WP-3 0013	SS operating procedures, 4.13.88
SS WP-3 0014	PS WP-5 statement of objectives and report outline, 5.4.88
SS WP-3 0015	PS organization chart, 3.18.88
SS WP-3 0016	Letter from A. Godber concerning errors in minutes, 5.2.88
SS WP-3 0017	Letter from F. Van Roessel correcting errors in minutes, 4.29.88
SS WP-3 0018	Letter from A. Godber - Choice of Production System, 5.2.88
SS WP-3 0019	ATV System flow diagram, 5.4.88
SS WP-3 0020	Spreadsheet by W. Loveless
SS WP-3 0021	SS WP-3 minutes of third meeting, 5.4.88
SS WP-3 0022	Letter from WP-3 Chairman to Dr. Schreiber 5.7.88
SS WP-3 0023	MUSE system and its family - NHK, 6.13.88
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SYSTEMS SUBCOMMITTEE WP-3  
MAILING LIST  
June 14, 1989

labels=  
2272H

Ann E. Goodwin (James Ennis)  
Fletcher, Heald & Hildreth  
1225 Connecticut Avenue, NW  
Suite 400  
Washington, DC 20036

Robert Hopkins  
ATSC  
1771 N Street, NW  
Washington, DC 20036

William F. Schreiber  
MIT  
E15-387 MIT  
Cambridge, MA 02139

David L. Hanna  
GTE Service Corp./Telops  
1203 Crest Drive  
Culleyville, TX 76034

Keith Fleming  
Scientific Atlanta  
4356 Communications Drive  
Norcross, GA 30093

Mick Ghazey  
Dubner Computer  
6 Forest Avenue  
Paramus, NJ 07652

Louis Williamson  
American TV & Communications  
160 Inverness Drive, W  
Englewood, CO 80112

F. J. Van Roessel  
BTS  
900 Corp. Drive  
Mahwah, NJ 07430  
(201) 529-1550

Al Kelsch  
National Semiconductor  
C2500  
2900 Semiconductor Drive  
Santa Clara, CA 95051

Joe Gianquinto  
Group W  
888 7th Avenue  
New York, NY 10106